

WHAT IS CLAIMED IS:

1. An isolated microorganism identified by accession number KCTC 0687BP.
- 5 2. A method of producing an exopolysaccharide, comprising:
providing an isolated microorganism identified by accession number KCTC 0687BP;
culturing the microorganism in a medium so as to allow production of an exopolysaccharide.
- 10 3. The method of Claim 1, further comprising:
isolating the exopolysaccharide from a mixture comprising the culture medium, the microorganism and the exopolysaccharide.
- 15 4. The method of Claim 1, wherein the culture medium comprises a carbon source selected from the group consisting of glucose, sucrose, fructose, rhamnose, galactose, arabinose, mannitol, lactose, gluconate, xylose and mixtures thereof.
5. The method of Claim 1, wherein the culturing is performed at a temperature ranged from about 25 °C to about 38 °C.
6. The method of Claim 1, wherein the culturing is performed under aeration at a flow rate ranged from about 0.1 vvm to about 1.5 vvm.
- 20 7. The method of Claim 1, wherein the culturing is performed under agitation at an agitation speed ranged from about 150 to about 500 rpm.
8. The method of Claim 3, wherein the isolation of the exopolysaccharide comprises:
removing cells from the culture mixture; and
25 dialyzing a resulting mixture so as to isolate the exopolysaccharide.
9. The method of Claim 8, wherein the removal of cells comprises:
centrifuging the culture mixture to obtain a supernatant;
precipitating a mixture comprising the exopolysaccharide;
dissolving the precipitate in a liquid; and
30 removing remaining cells.

10. The method of Claim 8, further comprising lyophilizing the separated exopolysaccharide.

11. A composition obtainable by the method of Claim 1.

12. A composition comprising an isolated exopolysaccharide from an *Enterobacter* species, wherein the species is obtained from root bark of Chinese elm, *Ulmus* species and the exopolysaccharide has a molecular weight ranged from about 100,000 to about 1,000,000.

13. The composition of Claim 12, wherein the isolated exopolysaccharide comprises sugar in an amount ranged from about 40 wt.% to about 75 wt.%.

14. The composition of Claim 12, wherein the isolated exopolysaccharide comprises acidic sugar in an amount ranged from about 5 wt.% to about 15 wt.%.

15. The composition of Claim 12, wherein the isolated exopolysaccharide comprises protein in an amount ranged from about 10 wt.% to about 25 wt.%.

16. The composition of Claim 12, wherein the isolated exopolysaccharide comprises glucose, fructose, galactose, fucose and glucuronic acid.

17. The composition of Claim 12, wherein the isolated exopolysaccharide comprises 10-30 wt.% glucose, less than 1 wt.% fructose, 10-15 wt.% galactose, 8-12 wt.% fucose and 40-70 wt.% glucuronic acid.

18. A method of inducing immune cell proliferation, comprising:
providing cells; and
contacting the exopolysaccharide of Claim 12 with the cells, thereby stimulating proliferation of immune cells.

19. The method of Claim 18, further comprising identifying immune cells in need of an induction of proliferation.

20. The method of Claim 18, further comprising measuring immune cell proliferation.

21. A method of inhibiting proliferation of cancer cells, comprising:
providing a cancer cell; and
contacting the exopolysaccharide of Claim 12 with the cancer cell.

22. The method of Claim 21, wherein the cancer cells comprising melanoma cells.

23. A method of inhibiting cancer cell proliferation in a mammal, the method comprising:

identifying a mammal in need of an agent that inhibit cancer cell proliferation; and

5 providing the mammal with the expolysaccaharide of Claim 12.

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